REMARKS

In response to the Office Action dated 16 May 2001, claims 2, 9, and 11 have been cancelled. Independent claims 1 and 8 have been amended herein to incorporate the subject matter of the cancelled dependent claims. Various amendments of a technical nature have been made to the remaining claims, making terminology consistent with prior amendments and similar clarifications of a self-evident nature, which are not intended to limit the scope of the claims. No new matter has been added.

Applicant's invention comprises a wide area communication system wherein individual receivers extract and decode primary data packets uniquely addressed to them from a broadband signal containing primary data packets addressed to many different receivers. At a relay station (*e.g.*, a communications satellite), receiver address and start time information are separated from the plurality of primary data packets. A narrow band beam transmits an index signal containing these addresses and start times to the receivers. A broadband beam carries the primary data packets to the receivers. Each receiver monitors the index signal in real time, searching for its unique address, while buffering the broadband primary data signal. Upon detection of its address, a receiver then utilizes the start time and other identifying data in the index packet to access the relevant primary data packet from the buffer. Applicant's invention thus comprises a method of transmitting individual data packets to specific receivers – *i.e.*, the system simultaneously transmits multiple communications channels or calls to individual receivers.

Considering the Examiner's Response to Arguments, Applicant first notes the points of agreement – that a narrow band index signal and broadband primary data

signal; a relay station extracting index packets and assembling the index signal; retransmitting the index signal and primary data signal to receivers; and locating the relay station on a satellite are patentably distinct over the prior art of record.

Second, the Examiner noted the independent claims recited a broadband primary signal and an index signal, but did not specify that the index signal occupied a narrow band channel. Accordingly, claims 1, 8, 17, and 19 have been amended herein to explicitly recite that the index signal is a narrow band signal.

Third, the Examiner agrees that the broadband signal of the present invention comprising primary data packets, is distinct from the service update packets disclosed in the Sugita reference. Briefly, Sugita discloses an efficient method of distributing broadcast information, such as weather reports, stock data, etc., to all subscribing mobile terminals in a CDMA cellular system. By broadcasting an index packet containing the version of the information on a paging channel, receivers may examine the version number, and need not obtain a new update until such time as the version is more current than their last update. In contrast, the index signal of Applicant's invention identifies specific, individual receivers by an address in the index packet. However, the Examiner asserted that this distinction, while significant, is not adequately claimed. Specifically, the Examiner stated that Sugita's service update information is transmitted "for a particular receiver," and that the "[r]eceiver ID" anticipates Applicant's index signal addresses. The Examiner has misconstrued Sugita. The index packet of Sugita does not contain any addressing information, and does not in any way identify specific receivers.

> And as update information, an index packet is transmitted, which includes the type of information to be provided, the version number of the information, and identification information that identifies whether the

> information is repeatedly transmitted by using the exclusive information-providing code channel or is transmitted by connecting to the information service center.

Sugita, col. 2, ll. 26-32. *See also* col. 6, ll. 51-63. The index packet of Sugita contains: the type of information (*i.e.*, stocks, weather, etc.), a version number, and an indication on which of two channels the information is available (broadcast on a dedicated channel, or via a traffic channel). There is no receiver address, no receiver ID, or any other information in the index packet by which an individual receiver is identified. Furthermore, the action taken by the receiver depends on the contents of the index packet, but not on any address or other form of receiver identification contained therein.

> The mobile communication terminal device examines whether or not the desired information has been updated, and if so, receives the exclusive information-providing code channel or connects to the information service center in order to obtain the desired information.

Sugita, col. 2, ll. 32-36. The receiver first examines the version number in the index packet. If the information has not been updated since the receiver last obtained it, the receiver takes no further action. If the information has been updated, the receiver examines the channel indicator in the index packet to determine whether to tune to a dedicated CDMA channel to receive updated information, or whether to contact the base station and request an update over a CDMA traffic channel. None of these actions depend on the address or identification of the specific, individual receiver. Receiver address or ID simply is not part of the information index packet of Sugita.

The Examiner further stated:

> Although Sugita describes a method of **broadcast to all** subscribing terminals, it anticipates the claimed subject matter of transmitting address of the terminals followed by the information packet. Terminals examine **their individual address** for the reception of the information packet. This is the concept of the claimed subject matter.

Final Office Action of 16 May 2001, p. 5, ¶ 3 (emphasis original). Again, this is erroneous. Sugita does not transmit individual addresses of receivers as part of the index packet, to facilitate reception of the information transmission. The only mention of addresses in Sugita is in reference to paging messages. It is well known in the art that multiple paging messages may be distributed in a broadcast, with a header containing the individual receiver address. Sugita uses the paging channel as a conduit for broadcasting its information index packets, but the index packets themselves do not have any receiver addresses. "If there is no paging message for the mobile terminal device and the current timing is for receiving the information index packet, the mobile terminal device continues to receive the paging channel to receive the information index packet." Sugita, col. 6, ll. 38-42.

Turning to the claim rejections, the Examiner has maintained the rejection of claims 1, 4-10, and 13-20 under 35 U.S.C. § 102(e) as being anticipated by Sugita. As discussed above, claims 1, 8, 17, and 19, as amended herein, distinguish patentably over Sugita, as each includes the explicit limitation that individual receiver addresses are transmitted as part of the index signal. Additionally, the limitation of the index signal being transmitted on a narrow band channel has been added.

The Examiner additionally maintained the rejection of claims 2, 3, 11, and 12 under 35 U.S.C. § 103(a) as being obvious over Sugita in view of Saito. As discussed above, Sugita does not teach the transmission of index packets in an index signal, each index packet containing, *inter alia*, the address of a specific receiver for which a corresponding data packet is transmitted in a primary data signal. Thus, the combination with Saito does not make out a *prima facie* case of obviousness. Even

assuming *arguendo*, however, that Sugita taught the index signal of Applicant's invention, Saito does not teach or suggest the separation of index packets and data packets into narrow band and broadband signals, respectively. As discussed in Applicant's prior Response, the f1 signal of Saito is only a ranging signal used to estimate the receiver's distance from a base station. That distance in turn determines in which time slot of a TDMA frame the receiver's call data is located. The f1 signal contains no information from which any receiver – let alone a specifically addressed receiver – may locate its message within the accompanying broadband signal, the CDMA transmission (f2). That function is performed by correlation with a PN code, as is well known in the art.

All substantive amendments presented in this Response simply make explicit distinctions that the Examiner has agreed carry patentable weight over the prior art, to wit, the limitation of a narrow band index signal. This limitation was present in the claims as filed, and was in fact the subject of an obviousness rejection. No new search is therefore required, and entry of the amendments is respectfully requested. Other amendments merely place the application in better form for allowance or appeal, and entry is proper under 37 C.F.R. § 1.116.

All pending claims in the instant application, as amended herein, are patentably novel and non-obvious over the cited art. Prompt allowance of all pending claims is therefore respectfully requested.

Version with Markings to Show Changes Made

Amendments in the Claims

In accordance with 37 C.F.R. § 1.121(c), the following versions of the claims as rewritten by the foregoing amendment show all the changes made relative to the previous versions of the claims.

1. (Thrice Amended) A method of transmitting data in a digital communication system between a transmitting station and a plurality of receivers, said transmitting method comprising:

a) generating a primary data signal containing a plurality of primary data packets, each said primary data packet intended for a specific one of said receivers.

b) transmitting said primary data signal over a broadband channel to said plurality of transceivers;

c) transmitting an index signal <u>over a narrow band channel</u> from said transmitting station to said plurality of receivers, wherein said index signal comprises a plurality of index data packets, each said index data packet corresponding to a respective one of said primary data packets and containing address information addressing a specific one of said receivers;

d) receiving and decoding said index signal at said plurality of receivers;

e) determining and selecting, at each said receiver, those primary data packets in said primary data signal that are intended for said receiver based on address information in said index data signals;

f) extracting and decoding the selected primary data packets in said primary data signal at said plurality of receivers.

3. (Amended) The method of claim 1 wherein the index signal is transmitted at the same rate as the [information] primary data signal.

4. (Amended) The method of claim 1 where the receiving means demodulates and decodes the [first] index data signal in real-time.

8. (Thrice Amended) A method of transmitting data in a digital communication system between a transmitting station and a plurality of receivers, said transmitting method comprising:

a) transmitting a primary data signal from said transmitting station to a relay station, wherein said primary data signal contains a plurality of primary data packets, each said primary data packet intended for a specific one of said receivers;

b) extracting a plurality of index data packets from said primary data signal at said relay station, wherein each said index data packet corresponds to a respective one of said primary data packets and contains address information addressing a specific one of said receivers;

c) re-transmitting said primary data signal from said relay station to said plurality of receivers over a broadband channel;

d) transmitting an index signal from said relay station to said plurality of receivers over a narrow band channel, wherein said index signal contains said plurality of index data packets extracted from said primary data signal for selecting said primary data packets in said primary data signal;

e) receiving and decoding said index signal at said plurality of receivers;

f) determining and selecting, at each said receiver, those primary data packets in said primary data signal that are intended for said receiver based on address information in said index data signal;

g) extracting and decoding the selected primary data packets in said primary data signal at said plurality of receivers.

10. (Amended) The method of claim 8 where the [information] primary data signal is transmitted at a rate of variable bit rates from 2 Mbps to 64 Mbps.

12. (Amended) The method of claim 8 wherein the index signal is transmitted at the same rate [of] as the information signal.

13. (Amended) The method of claim 8 [where the receiving means demodulates and decodes the first index data signal] wherein receiving and decoding said index signal at said plurality of receivers is done in real-time.

14. (Amended) The method of claim 8 [wherein the information] further comprising the step of temporarily buffering the primary data signal [is temporarily buffered by the receiver for later] prior to its demodulation and decoding.

15. (Amended) The method of claim 8 wherein the index signal includes a plurality of packets, each packet in said index signal including an identification field containing information for identifying a particular receiver and a packet identification field for identifying corresponding packet(s) start time in said [information] primary data signal.

16. (Amended) The method of claim 8 wherein the packets in the index signal correspond to the packets in the [information] primary data signal.

17. (Amended) A broadband communications system comprising:

f) a transmitting station including:

i) first transmitting means for transmitting a broadband [information] primary data signal to a plurality of receivers, wherein said broadband signal [having] includes a plurality of data packets each addressed to a selected receiver;

ii) a second transmitting means for transmitting [an] a narrow band index signal including addressing information for identifying the location of data packets in said broadband signal intended for a selected receiver and the start time of those packet(s) [in that receiver];

g) a plurality of receivers for receiving said [information] primary data signal and said index signal, each receiver including:

i) a first signal processing means for demodulating and decoding said index signal to extract said addressing information;

ii) a second signal processing means for demodulating and decoding said [information] primary data signal;

iii) control means for selectively activating said second signal processing means based on addressing information in said index signal.

18. (Amended) The communication system of claim 17 wherein said receiver further includes an input buffer for temporarily storing said received [information] primary data signal before demodulating and decoding portions of said [its own information] primary data signal.

19. (Amended) A receiver for a broadband communication system comprising:

h) a first signal processing means for demodulating and decoding a received narrow band index signal to extract addressing information contained in said index signal;

i) a second signal processing means for demodulating and decoding a received broadband [information] primary data signal;

j) control means for selectively activating said second signal processing means based on addressing information in said index signal.

20 (Amended) The communication system of claim [21] 19 wherein said receiver further includes an input buffer for temporarily storing said received [information]

primary data signal before demodulating and decoding portions of said [its own information] primary data signal.